



General

Guideline Title

Recommendations on screening for high blood pressure in Canadian adults.

Bibliographic Source(s)

Canadian Task Force on Preventive Health Care. Recommendations on screening for high blood pressure in Canadian Adults. Ottawa (ON): Canadian Task Force on Preventive Health Care; 2012. 32 p. [33 references]

Guideline Status

This is the current release of the guideline.

This guideline updates a previous version: Canadian Task Force on Preventive Health Care. Canadian Task Force on the Periodic Health Examination. Canadian Guide to Clinical Preventive Health Care. Ottawa (Canada): Health Canada; 1994. Screening for hypertension in young and middle-aged adults. p. 636-48.

A complete list of planned reviews, updates, and revisions is available under the What's New section at the [Canadian Task Force on Preventive Health Care \(CTFPHC\) Web site](#) .

Recommendations

Major Recommendations

The grades of recommendations (strong, weak) and quality of evidence (high, moderate, low, very low) are defined at the end of the "Major Recommendations" field.

1. The Task Force recommends blood pressure measurement at all appropriate primary care visits.^{i,ii} (Strong recommendation; moderate quality evidence)ⁱⁱⁱ
 - i. 'Appropriate' visits may include new patient visits, periodic health exams; urgent office visits for neurological or cardiovascular related issues, medication renewal visits, and other visits where the Primary Care Practitioner deems it an appropriate opportunity to monitor blood pressure. It is not necessary to measure blood pressure on every patient at every office visit if not clinically indicated.
 - ii. The frequency and timing of blood pressure screening may vary between patients. The risk of high blood pressure and the risk of stroke or heart disease change over a person's natural lifespan and increases with age, comorbidities, and the presence of other risk factors. Therefore appropriate screening frequency may increase accordingly, especially in patients with more than one vascular risk factor. Adults identified as belonging to a high-risk ethnic group (South Asian, Aboriginal, African ancestry) may benefit from more frequent monitoring. Having recent consistently normal blood pressure measurements may decrease the need for monitoring, whereas a tendency toward high-normal blood pressure could indicate that more frequent monitoring is needed.
 - iii. The evidence rating is based on a substantial body of indirect evidence and moderate quality evidence from one randomized

controlled trial (RCT).

2. The Task Force recommends that blood pressure be measured according to the current techniques described in the Canadian Hypertension Education Program (CHEP) recommendations for office and out-of-office (ambulatory) blood pressure measurement. (Strong recommendation; moderate quality evidence)^{iv}
 - iv. The 2012 CHEP recommendations for office and ambulatory blood pressure measurement were critically appraised by the Canadian Task Force on Preventive Health Care (CTFPHC) to assess the quality of the guideline development process, and were found to meet the CTFPHC criteria for rigorously developed guidelines.
3. For people who are found to have an elevated blood pressure during screening, the CHEP criteria for assessment and diagnosis of hypertension should be applied to determine whether the patient meets diagnostic criteria for hypertension. (Strong recommendation; moderate quality evidence)^v
 - v. The 2012 CHEP recommendations for assessment and diagnosis of high blood pressure were critically appraised by the CTFPHC to assess the quality of the guideline development process, and were found to meet the CTFPHC criteria for rigorously developed guidelines.

Definitions:

Grading of Recommendations

- Strong recommendations are those for which the Canadian Task Force on Preventive Medicine (CTFPHC) is confident that the desirable effects of an intervention outweigh its undesirable effects (strong recommendation for an intervention) or that the undesirable effects of an intervention outweigh its desirable effects (strong recommendation against an intervention). A strong recommendation implies that most individuals will be best served by the recommended course of action.
- Weak recommendations are those for which the desirable effects probably outweigh the undesirable effects (weak recommendation for an intervention) or undesirable effects probably outweigh the desirable effects (weak recommendation against an intervention) but appreciable uncertainty exists. A weak recommendation implies that most people would want the recommended course of action but that many would not. For clinicians this means they must recognize that different choices will be appropriate for each individual, and they must help each person arrive at a management decision consistent with his/her values and preferences. Policy-making will require substantial debate and involvement of various stakeholders. Weak recommendations result when the balance between desirable and undesirable effects is small, the quality of evidence is lower, or there is more variability in the values and preferences of patients. Evidence is graded as high, moderate, low or very low, based on how likely further research is to change confidence in the estimate of effect.

Grading of Recommendation Assessment, Development and Evaluation (GRADE) Working Group Grades of Evidence

- High quality: Further research is very unlikely to change the Task Force's confidence in the estimate of effect.
- Moderate quality: Further research is likely to have an important impact on the Task Force's confidence in the estimate of effect and may change the estimate.
- Low quality: Further research is very likely to have an important impact on the Task Force's confidence in the estimate of effect and is likely to change the estimate.
- Very low quality: The Task Force is very uncertain about the estimate.

Clinical Algorithm(s)

A clinical algorithm for screening for hypertension in the adult population is provided as a supplemental tool (see the "Availability of Companion Documents" field).

Scope

Disease/Condition(s)

Hypertension

Guideline Category

Diagnosis

Prevention

Screening

Clinical Specialty

Cardiology

Family Practice

Internal Medicine

Intended Users

Advanced Practice Nurses

Allied Health Personnel

Nurses

Physician Assistants

Physicians

Guideline Objective(s)

- To provide recommendations on screening for hypertension for adults aged 18 years and older not previously diagnosed with hypertension
- To update prior guidelines by the Canadian Task Force on Preventive Health Care (CTFPHC), which were last reviewed in 1994

Target Population

Adults aged 18 years and older without previously diagnosed hypertension

Note: Recommendations apply to the general population including adults with average baseline blood pressure and those at higher than average risk of hypertension and vascular risk. These recommendations do not apply to individuals who have already received a confirmed diagnosis of hypertension.

Interventions and Practices Considered

1. Blood pressure measurement at all appropriate primary care visits
2. Blood pressure measurement according to techniques described in the Canadian Hypertension Education Program (CHEP) recommendations for office and out-of-office (ambulatory) blood pressure measurement
3. Use of the CHEP criteria for assessment and diagnosis of hypertension to determine whether patients meet diagnostic criteria for hypertension

Major Outcomes Considered

- Cardiovascular morbidity (stroke, heart disease, renal disease, retinal disease, peripheral arterial disease)
- Cardiovascular-related mortality and all-cause mortality
- Systolic and diastolic blood pressure
- New diagnosis of hypertension
- Harms including false positive or false negative diagnosis; psychosocial impact; economic costs (lost work time, insurance)

Methodology

Methods Used to Collect/Select the Evidence

Searches of Electronic Databases

Description of Methods Used to Collect/Select the Evidence

Note from the National Guideline Clearinghouse (NGC): A systematic evidence review was prepared by the McMaster Evidence Review and Synthesis Centre (MERSC) at McMaster University for the Canadian Task Force on Preventive Health Care (CTFPHC) (see the "Availability of Companion Documents" field).

Literature Search and Review

In 1996 the evidence regarding screening for hypertension was reviewed by the U.S. Preventive Services Task Force (USPSTF). At that time no studies were found that examined the direct effect of screening for elevated blood pressure on clinical outcomes (although many trials had shown a beneficial effect of treating patients who were enrolled on the basis of high blood pressures detected during screening examinations). For this reason 1996 was selected as the starting year for the search. A search strategy was developed to identify the literature on screening for hypertension. The search was limited to English and French language literature published between 1996 and November 2010 (see Appendix A of the systematic review [see the "Availability of Companion Documents"] field for detailed search terms). The search was performed in three bibliographic databases: Medline, EMBASE and EBM Cochrane Controlled Trials. Separate search strategies were used to incorporate the distinct subject headings employed in Medline and Cochrane Controlled Trials (MESH) and in EMBASE (Entree). Given the paucity of research identified in the first screening, a decision was made to expand the search date parameters. The search was rerun on September 14, 2011 in the same databases, using the original search criteria, with the dates amended to pick up older research published between 1985 and 1996. Concurrently, the search was updated to include any research published from the date of the initial search in November 2010 up until September 14, 2011.

To address the contextual questions, six additional expedited searches were conducted in Medline, EMBASE and EBM Cochrane Controlled Trials (Appendix B in the systematic review [see the "Availability of Companion Documents" field]). These searches were limited to English and French language systematic reviews, meta-analyses, randomized control trials, observational studies and simulation modeling studies published between 2005 and 2011. Studies of patient preferences and values could be any study design, including qualitative studies. Opportunistic screening was also completed while reviewing the comprehensive literature searches for the key questions. A search of the grey literature was conducted to identify relevant Canadian data disseminated from high-quality governmental and nongovernmental organizations such as the Public Health Agency of Canada, the Canadian Institutes for Health Research, Statistics Canada and the Canadian Agency for Drugs and Technologies in Health. Grey literature was only incorporated into the review as contextual information and was not assessed with the Grading of Recommendations Assessment, Development and Evaluation (GRADE) system.

Study Selection

Table 1 in the systematic evidence review (see the "Availability of Companion Documents" field) presents the inclusion/exclusion criteria established for all Key Questions. Table 2 in the systematic evidence review presents the detailed ranking by the Hypertension Working Group of the outcomes and harms associated with hypertension screening.

The Hypertension Screening Working Group rated each of the potential outcomes and harms of screening using the GRADE Process. GRADE suggests a nine point scale (1 to 9) to judge the importance of the outcomes and harms. The upper end of the scale, rankings of 7 to 9, identifies outcomes of critical importance for clinical decision making. Rankings of 4 to 6 represent outcomes that are important but not critical, whereas rankings of 1 to 3 are deemed to be of limited importance to decision making or to patients. The outcomes and harms associated with hypertension screening resulted in the rankings presented in Table 2.

Number of Source Documents

A total of 4 publications were included in the final review.

Methods Used to Assess the Quality and Strength of the Evidence

Weighting According to a Rating Scheme (Scheme Given)

Rating Scheme for the Strength of the Evidence

Grading of Recommendation Assessment, Development and Evaluation (GRADE) Working Group Grades of Evidence

- High quality: Further research is very unlikely to change the Task Force's confidence in the estimate of effect.
- Moderate quality: Further research is likely to have an important impact on the Task Force's confidence in the estimate of effect and may change the estimate.
- Low quality: Further research is very likely to have an important impact on the Task Force's confidence in the estimate of effect and is likely to change the estimate.
- Very low quality: The Task Force is very uncertain about the estimate.

Methods Used to Analyze the Evidence

Review of Published Meta-Analyses

Systematic Review with Evidence Tables

Description of the Methods Used to Analyze the Evidence

Note from the National Guideline Clearinghouse (NGC): A systematic evidence review was prepared by the McMaster Evidence Review and Synthesis Centre (MERSC) at McMaster University for the Canadian Task Force on Preventive Health Care (CTFPHC) (see the "Availability of Companion Documents" field).

Quality Assessment, Data Abstraction and Analysis

The titles and abstracts were reviewed in duplicate by members of the synthesis team. Articles marked for inclusion by either team member went on to full text rating. Full text inclusion, data abstraction and quality assessment were done by two people at all times. All disagreements were resolved through discussions with the synthesis team and inclusion results were reviewed by a third person. Data were abstracted using a standard format by two people. Abstracted data included, when available, study design, participant selection process, exclusions, blinding, confounders, intervention and control group characteristics (e.g., size, gender, age, ethnicity, family history of hypertension, etc.), intervention details (e.g., description, duration, number of follow ups, loss to follow up, screening instrument, screener, setting of screening, etc.), reported outcomes and results. The exceptions to this process were studies related to the contextual questions of costs, performance indicators, patient preferences, subpopulations, and grey literature, for which abstraction was conducted by one person.

The included studies were reviewed according to the criteria set out in the CTFPHC Procedure Manual (see the "Availability of Companion Documents" field). The strength of evidence was determined based on the GRADE (Grading of Recommendations Assessment, Development and Evaluation) system of rating quality of evidence using GRADEPro® software. The GRADE system classifies quality of evidence according to one of four levels: high, moderate, low and very low. The final grade is based on the risk of bias due to limitations in design, inconsistency of findings, indirectness, imprecision and publication bias. Information to determine the quality of evidence was abstracted in duplicate from the primary methodology paper from each study. Those abstracting the data were blind to each other's ratings. In cases of disagreement, final decisions were determined by consensus after consultation with a third reviewer. All outcomes of interest for the Key Questions are presented separately in GRADE Evidence Profile Key Question 1 (KQ1) and GRADE Evidence Profile KQ3 (see the systematic evidence review of the GRADE Evidence Profiles for all of the key questions). The CTFPHC will defer to Canadian Hypertension Education Program (CHEP) recommendations for specific procedures and techniques for measuring blood pressure. Therefore literature was not searched to address KQ2a nor is any data presented for this question. No literature was identified to address KQ2b and therefore no data for this question is presented. In addition to data required to complete the GRADE process, the McMaster Evidence Review and Synthesis Centre (MERSC) abstracted data about the patient population, the study design, analysis and results for each study (see Table 3, "Characteristics of Included Studies," in the systematic evidence review [see the "Availability of Companion Documents" field]).

Methods Used to Formulate the Recommendations

Expert Consensus

Description of Methods Used to Formulate the Recommendations

Note from the National Guideline Clearinghouse (NGC): A systematic evidence review was prepared by the McMaster Evidence Review and Synthesis Centre (MERSC) at McMaster University for the Canadian Task Force on Preventive Health Care (CTFPHC) (see the "Availability of Companion Documents" field).

The Canadian Task Force for Preventive Health Care (CTFPHC) is an independent panel of clinicians and methodologists with expertise in prevention, primary care, literature synthesis, critical appraisal, and the application of evidence to practice and policy, and which makes recommendations about clinical maneuvers aimed at primary and secondary prevention.

Analytic Framework

Analytic frameworks are used to describe the clinical concepts and logic underlying beliefs about how interventions may improve health outcomes. Figure 1 in the systematic review (see the "Availability of Companion Documents" field) depicts the analytic framework for evaluating studies of screening for hypertension. This analytic framework draws heavily from the framework designed by the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure (JNC7).

Key Questions

1. Does screening for hypertension in primary care practice reduce the risk of cardiovascular morbidityⁱ, cardiovascular mortality, and all-cause mortality? Does it lead to sustained reductions in blood pressure?
2. How can we most effectively screen for people in whom blood pressure reduction may be beneficial?
 - a. Which method of blood pressure screening (ambulatory, office or home blood pressure measurements) is most effective for identifying patients who might benefit from treatment?ⁱⁱ
 - b. What is the optimal frequency and timing of screening (including age of onset of screening) for identifying patients who might benefit from treatment? Are there specific criteria that should trigger an increase in the frequency of screening?
3. Excluding harms directly related to treatment of hypertension, what are the harms associated with screening to identify hypertension?
 - i. Cardiovascular morbidity includes stroke, heart disease, renal disease, peripheral arterial disease, and retinal disease
 - ii. The recommendations will defer to CHEP for a description of the specific processes for taking blood pressure in office, home and ambulatory

Contextual Questions

Contextual questions are not key questions associated with the analytic framework; however, they represent issues in a review for which the CTFPHC needs a valid, but not necessarily systematic, summary of current research. Results from the contextual question searches are only incorporated in a narrative summary and are not assessed with the GRADE system. The search strategy for contextual questions is outlined in the Literature Search and Review section (see the "Description of Methods Used to Collect/Select the Evidence" field).

Is there evidence that the burden of disease, the risk: benefit ratio of screening or the optimal screening method differ in the following subgroups: people of south-east Asian or African ancestry; Aboriginal populations; women with a history of hypertension during pregnancy?

Is there evidence that access to screening differs for the following subgroups: Aboriginal populations; rural and remote populations?

What are the resource implications and cost effectiveness of blood pressure screening in Canada?

What are patients' values and preferences regarding blood pressure screening?

What process and outcome performance measures (indicators) are identified in the literature to measure and monitor the impact of screening for hypertension?

Is there any evidence that the utility of screening in the workplace, at a health fair or pharmacy differs from screening in the family physician's office?

Grading of Recommendations

Recommendations are graded according to the Grading of Recommendations Assessment, Development and Evaluation system (GRADE). GRADE offers two strengths of recommendation: strong and weak. The strength of recommendations is based on the quality of supporting

evidence; degree of uncertainty about the balance between desirable and undesirable effects; degree of uncertainty or variability in values and preferences; and degree of uncertainty about whether the intervention represents a wise use of resources.

Rating Scheme for the Strength of the Recommendations

Grading of Recommendations

- Strong recommendations are those for which the Canadian Task Force on Preventive Medicine (CTFPHC) is confident that the desirable effects of an intervention outweigh its undesirable effects (strong recommendation for an intervention) or that the undesirable effects of an intervention outweigh its desirable effects (strong recommendation against an intervention). A strong recommendation implies that most individuals will be best served by the recommended course of action.
- Weak recommendations are those for which the desirable effects probably outweigh the undesirable effects (weak recommendation for an intervention) or undesirable effects probably outweigh the desirable effects (weak recommendation against an intervention) but appreciable uncertainty exists. A weak recommendation implies that most people would want the recommended course of action but that many would not. For clinicians this means they must recognize that different choices will be appropriate for each individual, and they must help each person arrive at a management decision consistent with his/her values and preferences. Policy-making will require substantial debate and involvement of various stakeholders. Weak recommendations result when the balance between desirable and undesirable effects is small, the quality of evidence is lower, or there is more variability in the values and preferences of patients. Evidence is graded as high, moderate, low or very low, based on how likely further research is to change confidence in the estimate of effect.

Cost Analysis

Economic Implications of Screening

Most economic analyses concerning hypertension are focused on the cost effectiveness of different treatment alternatives rather than the resource implications and cost-effectiveness of blood pressure screening in Canada. Only one study that examined the cost effectiveness of screening for hypertension was identified. Researchers who examined screening for hypertension as a risk factor for chronic kidney disease found that annual screening would provide a gain of 0.1 Quality Adjust Life Years (95% confidence interval [CI]: -1.4 to 1.7) per patient screened.

Blood pressure measurement is inexpensive. Costs associated with blood pressure measurement include costs of equipment and physician and patient's time. The largest costs are associated with treatment and the downstream costs of untreated disease.

Method of Guideline Validation

Comparison with Guidelines from Other Groups

Description of Method of Guideline Validation

Table 2 in the original guideline document provides a comparison between the current and previous task force guidelines, as well as recommendations from other groups.

Evidence Supporting the Recommendations

Type of Evidence Supporting the Recommendations

The type of supporting evidence is identified and graded for each recommendation (see the "Major Recommendations" field).

Benefits/Harms of Implementing the Guideline Recommendations

Potential Benefits

Potential Benefits

Limited direct evidence exists to demonstrate that screening for high blood pressure leads to improved cardiovascular and other health outcomes. However substantial indirect evidence exists to demonstrate that measurement of blood pressure can identify adults at increased risk for cardiovascular disease, that diagnosis of hypertension leads to treatment and that treatment in turn leads to improved outcomes.

Potential Harms

The workgroup identified and searched for literature on the following clinically important harms associated with screening: false positives, false negatives, anxiety, psychological impacts, and economic costs such as lost time from work or lost insurance. They found no evidence to indicate that any of these clinically relevant harms result from hypertension screening, although they do acknowledge that no evidence of harms does not ensure that there are no harms. Recent evidence suggests that though pharmacologic therapy for early hypertension has common side effects, serious adverse effects are uncommon. An examination of the harms of treatment of hypertension were outside the scope of the workgroup's review.

Implementation of the Guideline

Description of Implementation Strategy

Considerations for Implementation of Recommendations

Although no evidence was found to indicate that screening practices should differ according to patients' risk profiles, hypertension appears to be more common in certain population subgroups. The prevalence of hypertension and cardiovascular disease increases as people age, and has been found to be higher in those of South Asian and African ancestry and of Aboriginal populations who also have a higher prevalence of associated co-morbidities. Clinical experience suggests that access to preventive health care is also reduced in Aboriginal populations or in remote and rural areas. Hypertension is also common in pregnancy. These populations therefore, may benefit from more frequent monitoring. Screening methods for populations where English is not a first language could be optimized by utilizing different knowledge translation tools to present information about hypertension screening in culturally appropriate and relevant ways. For instance, adapting pamphlets to accommodate differing literacy skills in Canadians of Indo-Asian descent improved users' understanding of hypertension over the original English versions.

Practitioners should remain alert for opportunities to screen those who infrequently attend their practice and others who have not been screened recently. These patients are often younger, appear healthy and may not have risk factors for hypertension or cardiovascular disease and may be overlooked for screening opportunities.

Suggested Performance Measures for Implementation

A key objective of the Canadian Task Force on Preventive Health Care (CTFPHC) is to support the uptake of its guidelines into clinical practice and to facilitate quality improvement. To achieve this goal, a key step in the guideline development process is the identification and selection of a small set of standardized key quality indicators. These quality indicators are directly linked to the recommendations contained in this guideline, and are designed and intended for individual practitioners to monitor their compliance and performance for hypertension screening. They will also enable groups of physicians to conduct comparisons for the sake of improvement and benchmarking.

Key quality indicators identified by the CTFPHC for blood pressure screening are provided in the original guideline document.

Implementation Tools

Audit Criteria/Indicators

Clinical Algorithm

Foreign Language Translations

Quick Reference Guides/Physician Guides

Resources

For information about availability, see the *Availability of Companion Documents* and *Patient Resources* fields below.

Institute of Medicine (IOM) National Healthcare Quality Report Categories

IOM Care Need

Staying Healthy

IOM Domain

Effectiveness

Patient-centeredness

Timeliness

Identifying Information and Availability

Bibliographic Source(s)

Canadian Task Force on Preventive Health Care. Recommendations on screening for high blood pressure in Canadian Adults. Ottawa (ON): Canadian Task Force on Preventive Health Care; 2012. 32 p. [33 references]

Adaptation

Not applicable: The guideline was not adapted from another source.

Date Released

1994 Mar (revised 2012)

Guideline Developer(s)

Canadian Task Force on Preventive Health Care - National Government Agency [Non-U.S.]

Source(s) of Funding

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Guideline Committee

Canadian Task Force on Preventive Health Care (CTFPHC) Writing Group

Composition of Group That Authored the Guideline

Writing Group Members: Patrice Lindsay, Sarah Connor Gorber, Michel Joffres, Richard Birtwhistle, Donald McKay, Lyne Cloutier

Financial Disclosures/Conflicts of Interest

None of the Canadian Task Force on Preventive Health Care (CTFPHC) members have any relevant financial conflicts of interest to disclose.

Guideline Endorser(s)

Canadian Stroke Network - Disease Specific Society

College of Family Physicians of Canada - Professional Association

Guideline Status

This is the current release of the guideline.

This guideline updates a previous version: Canadian Task Force on Preventive Health Care. Canadian Task Force on the Periodic Health Examination. Canadian Guide to Clinical Preventive Health Care. Ottawa (Canada): Health Canada; 1994. Screening for hypertension in young and middle-aged adults. p. 636-48.

A complete list of planned reviews, updates, and revisions is available under the What's New section at the [Canadian Task Force on Preventive Health Care \(CTFPHC\) Web site](#) .

Guideline Availability

Electronic copies: Available from the [Canadian Task Force on Preventive Health Care \(CTFPHC\) Web site](#) .

Print copies: Available from the Canadian Task Force on Preventive Health Care, 3050 RTF, University of Alberta, Edmonton, AB, T6G 2V2, Canada.

Availability of Companion Documents

The following are available:

- Screening for hypertension. Systematic review. Hamilton (ON): Evidence Review and Synthesis Centre, McMaster University; 2012 Oct 3. 115 p. Electronic copies: Available in Portable Document Format (PDF) from the [Canadian Task Force on Preventive Health Care \(CTFPHC\) Web site](#) .
- Clinician summary. CTFPHC recommendation for screening for hypertension. Canadian Task Force on Preventive Health Care; 2012. 2 p. Electronic copies: Available in PDF in [English](#) and [French](#) from the CTFPHC Web site.
- Screening for hypertension in the adult population. Clinical algorithm. Canadian Task Force on Preventive Health Care; 2012. 2 p. Electronic copies: Available in PDF in [English](#) and [French](#) from the CTFPHC Web site.
- Hypertension poster for clinicians. Canadian Task Force on Preventive Health Care; 2012. 1 p. Electronic copies: Available in PDF in [English](#) and [French](#) from the CTFPHC Web site.
- Canadian Task Force on Preventive Health Care methods manual. Canadian Task Force on Preventive Health Care; 2011 Oct. 86 p. Electronic copies: Available in PDF in [English](#) and [French](#) from the CTFPHC Web site.
- GRADE companion document to Task Force Guidelines. Canadian Task Force on Preventive Health Care; 2011. 2 p. Electronic copies: Available in PDF in [English](#) and [French](#) from the CTFPHC Web site.

In addition, suggested performance measures are available in the [original guideline document](#) .

Patient Resources

None available

NGC Status

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